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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,360	04/02/2001	John M. Wachsman	GENOA-P003	7178
22913	7590	06/17/2004	EXAMINER	
WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY)			PAYNE, DAVID C	
60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			ART UNIT	PAPER NUMBER
			2633	10
DATE MAILED: 06/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/824,360	WACHSMAN, JOHN M.
	Examiner	Art Unit
	David C. Payne	2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 April 2001.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6 and 14-23 is/are rejected.
- 7) Claim(s) 7-13 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 April 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9. 10-29-03</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because Figures 1 and 3 are hand drawn and illegible.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 7-13 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka et al. US 5,894,362 (Onaka) in view of Ishikawa et al. US 5,909,297 (Ishikawa).

Re claims 1 and 5, Onaka disclosed

A method for performing OTDM, said method comprising the following steps:

- a) generating n bit streams of approximately from respectively n laser beams (24 of Figure 5);
- c) combining said n bit streams into a composite bit stream (30a of Figure 5);

Onaka does not disclose

a Gb/s signal, tunable lasers;

- b) generating from said n bit streams n group velocity dispersed bit streams by introducing group velocity dispersion into said n bit streams;
- d) in response to misalignment of bits within said composite bit stream, tuning said wavelengths to create the proper OTDM time differential between consecutive bits within said composite bit stream.

Ishikawa disclosed introducing dispersion compensation (101 of Fig. 16) into a signal to

correct for wavelength dependent effects (see e.g., Ishikawa, col./line: 15/45-55).

Ishikawa disclosed tunable laser (44 of Fig. 4). It would have been obvious to one of ordinary skill in the art the time of invention to use tunable lasers in the Onaka system so that one type of laser can work over the entire WDM range as needed.

It would have been obvious to one of ordinary skill in the art the time of invention to use the dispersion compensator in the Onaka TDM system for the purpose of aligning TDM pulses. The effects of dispersion are well known in the art to cause differences of arrival time in pulses on different wavelengths. Ishikawa disclosed a 20 Gb/s signal (see e.g., Ishikawa, col./line: 14/35-40). It would have been obvious to one of ordinary skill in the art the time of invention to use the Onaka system at Gb/s rates since these rates are very common in modern optical systems which facilitate high data transfer rates.

Re claim 2, Onaka disclosed

generating a single-wavelength composite bitstream (24 of Figure 5);  
a bit stream with a wavelength converter (62 of Figure 16); and

However, Onaka disclosed tuning the laser diode to stabilize a wavelength (e.g. Onaka col./line: 7/5-12). Onaka does not disclose

in response to misalignment of bits within said single-wavelength composite bit stream, tuning said wavelengths to create the proper OTDM time differential between consecutive bits within said single-wavelength composite bitstream or a wavelength converter on the composite bit stream. It would have been obvious to one of ordinary skill in the art the time of invention to use the Onaka wavelength tuning system (see

Onaka Fig. 4) to align bits to eliminate bit overlap. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of invention to move the wavelength converters found in each branch of Onaka (62 of Figure 16) to the composite output as this will have the same effect and reduce the number of converters.

Re claims 3, 4 and 6, Onaka disclosed

j1) a laser source (24 of Figure 5);  
b) a combiner (30 of Fig. 5) coupled to said n channels and adapted to optically combine said bitstreams into a composite bitstream,

Onaka does not disclose

j2) a group velocity dispersive element coupled to said laser source, introducing group velocity dispersion into said bitstream;  
c) a wavelength converter coupled to said combiner and adapted to convert said composite bitstream into a single-wavelength composite bitstream to be transmitted through an optical link, wherein OTDM time differential can be created between consecutive bits of said single-wavelength composite bitstream by tuning the wavelengths.

Ishikawa disclosed introducing dispersion compensation (101 of Fig. 16) into a signal to correct for wavelength dependent effects (see e.g., Ishikawa, col./line: 15/45-55).

Ishikawa disclosed tunable laser (44 of Fig. 4). It would have been obvious to one of ordinary skill in the art at the time of invention to use tunable lasers in the Onaka system so that one type of laser can work over the entire WDM range as needed.

It would have been obvious to one of ordinary skill in the art the time of invention to use the dispersion compensator in the Onaka TDM system for the purpose of aligning TDM pulses. The effects of dispersion are well known in the art to cause differences of arrival time in pulses on different wavelengths. Ishikawa disclosed a 20 Gb/s signal (see e.g., Ishikawa, col./line: 14/35-40). It would have been obvious to one of ordinary skill in the art the time of invention to use the Onaka system at Gb/s rates since these rates are very common in modern optical systems which facilitate high data transfer rates. Furthermore, it would have been obvious to one of ordinary skill in the art a the time of invention to move the wavelength converters found in each branch of Onaka (62 of Figure 16) to the composite output as this will have the same effect and reduce the number of converters.

5. Claims 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka et al. US 5,894,362 (Onaka) in view of Ishikawa et al. US 5,909,297 (Ishikawa) as applied to claims 1 and 3-6 above, and in further view of Esman et al. US 6,337,660 B1 (Esman).

Re claims 14, 16, 18, 20 and 22, the modified invention of Onaka and Ishikawa did not disclose wherein said bitstreams are generated by modulating respectively n continuous wave tunable laser sources. Esman disclosed a continuous wave tunable laser source (see Esman col./line: 3/5-15). It would have been obvious to one of ordinary skill in the art at the time of invention to use such a laser for greater wavelength stability.

Re claims 15, 17, 19, 21 and 23, the modified invention of Onaka and Ishikawa did not disclose wherein said bitstreams are generated by modulating respectively n directly modulated laser sources. Esman disclosed a directly modulated tunable laser source (see Esman col./line: 4/55-65). It would have been obvious to one of ordinary skill in the art at the time of invention to direct modulation of the laser to reduce the number of components in the transmitter.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (703) 306-0004. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp

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M. R. SEDIGHIAN  
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Art Unit: 2633